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ABSTRACT

A study was undertaken to determine the effectiveness of using a satellite delivery system to provide market information to farmers. The program delivered by satellite was Crop Market Prospects, a one-day conference that presents the market outlook for both crops and inputs, investigates the world grain situation, and provides a long-term outlook. The conference, beamed live via satellites to 15 centers, provided opportunity for feedback and questions through direct phone links. A spring questionnaire was followed up with a fall survey at the conclusion of harvest. Crop Marker Prospects serves farmers who operate considerably larger farms than the average Saskatchewan farmer, hence are likely to have a higher level of information needs. Results indicated that participants were generally satisfied with the program format. The information was useful in helping producers make decisions regarding types of crops to plant. Findings also indicated that expected income increased as a result of changes made due to information presented at the program. Producers moved away from traditional crops to other and specialty crops, due to low price forecasts for certain cereal crops. No relationships were identified between the level of usefulness of the program and participant characteristics of age, size of farm, or time spent farming. (The study instruments and a listing of resources are appended.) (YLB)

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"MEETING THE CHALLENGE"

MASS EDUCATION BY SATELLITE

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A PAPER PRESENTED AT THE
AMERICAN ASSOCIATION FOR
ADULT AND CONTINUING
EDUCATION CONFERENCE

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WASHINGTON, D.C.

Presented by:
Glen Hass, BSA,BED,MCED

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INTRODUCTION

Empowering the farmer with the knowledge and understanding of market forces is critical in this time of economic stress in agriculture. Long gone are the days when a producer could simply plant his crop and with very little input expect a reasonable return on his effort. Today the farmer is faced with a large number of major decisions before he ever moves his machinery to the field. He must now address the question "What should I plant?" even before he considers how he will do his planting. The information needed to answer this question must often be obtained from various sources and by a wide variety of means. Obtaining the information is not the only task he faces. He must also interpret what he has obtained and utilize it to make production decisions relating to his own enterprize. This demand for market information by the farmer presents a new challenge for the agricultural extension worker.

Historically a great deal of emphasis has been placed on teaching farmers how to grow various crops. Indeed, the belief existed that to "grow more" was the primary objective of the agricultural extension. Given volume, markets would take care of themselves. The producer of today now realizes that management techniques are more important than production skills although there is no doubt that the two are related. The amount of crop produced and quality remain important but diversity relating to markets is also an important consideration. Today's farmer must have up-to-date information relating to markets. This information must include projected prices, market availability, grain stored and planting intentions. This information relates not just to a local situation but to the world wide prospective for it is the international market place that influences the farmer's decision. Increased production in oilseeds, cereals or feed grains in one part of the world can drastically affect the production in another.

THEORETICAL CONSIDERATIONS

Farm managers must make production decisions under conditions of uncertainty. Of the various sources of uncertainty, fluctuations in price, yield and markets for agricultural commodities have the greatest impact of the consequences of actions taken. Uncertainty dictates that farm managers must allocate their inputs without perfect knowledge of an expected return.

Since uncertainty is regarded as "a lack of knowledge about the state of the world at some future time" (Doll and Orazem), uncertainty can be reduced by an increase in knowledge. Frank H. Knight separated situations characterized by lack of knowledge into the subclasses of risk and uncertainty.

According to Knight, risk exists when a farm manager can relate a specific probability distribution to the set of all possible outcomes. A situation is defined as uncertain when the manager is unable to match probabilities with outcomes, or when the outcomes are unknown. Faced with a risky situation, the manager will evaluate all information which is available to determine subjective probabilities for the decision making process at hand. When the producer can access more information, the uncertainty faced will decrease. Because uncertainty is characterized by a lack of information, information becomes a new variable in the decision process.

When discussing the role of information as an economic good, careful distinction must be made between data and information. Data are the direct result of counting or measuring something. In other words, they are the product of a collection process. However, since the data are not given a decision making context, they have no inherent economic value.

On the other hand, information results when data are organized, interpreted and communicated to provide utility in a specific decision or subject matter context.(Bonnen) The synthesis of data to information may be as simple as presenting numbers in a table or as complicated as utilizing complex socio-economic models. Figure 1 shows the process of data transformation.

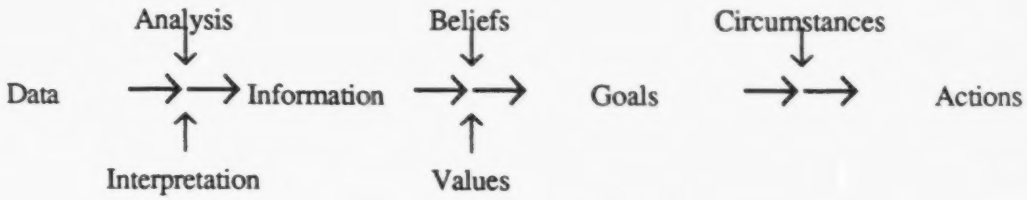

Figure 1 The Informational Process

When data are analyzed and interpreted in the light of a specific problem situation, they can become information which is relevant for the decision making process. This information is then further evaluated and influenced by the beliefs and values of the decision maker, resulting in the formulation of goals. Subjected to reality, these goals can become actions.

A demand for information exists due to its value in reducing uncertainty in decision making. This implies that information only takes on values when conditions of uncertainty exist. At the same time, information users tend to demand less than a socially optimal level of information due to uncertain return to their information investment. The paradox is that a socially optimal level of information will only be chosen when the return to investment is

known with absolute certainty. Under these conditions, however, information has no value since there is no uncertainty to be reduced.

A public good is characterized by the fact that use by one person does not preclude use by another. This is true to a certain extent of information. It may not be feasible to exclude those who do not pay for the information. Therefore a "free rider" problem exists. If this is true, one may ask why there are private firms specializing in information. These firms may be able to provide a certain format for the information, allow ease of access, or perform in-depth analysis due to the combination of data integrated from multiple sources. However, some people feel that subject matter information which is used to inform the general public should be provided as a public good.

When provision of public information is considered, one must realize that an equal distribution of data does not imply equality in information among users. The differences occur due to variability in the analytical capabilities of the users. Thus, access to data is not as important as access to analysis.

Variation in prices in a given market leads to uncertainty on the part of buyers and sellers. Grain producers face a variable distribution of prices quoted by buyers. In order for producers to achieve the best price for their commodities, they must gather bids from various buyers, a process called "search." According to George Stigler (1961), one of the pioneers in the field of search theory, price dispersion is a measure of marketplace ignorance. If prices are widely dispersed, the benefits from search will be greater.

For the majority of farmers, the major cost of search is time. The optimal amount of search would be represented by:

$$q \quad \frac{dp}{dn} \quad = i \text{ X marginal cost of search}$$

where q is the quantity to sell, p is the price bids, n is the number of searches, and i is the interest rate(Stigler). Dispersion in prices is maintained despite search due to the fact that knowledge becomes obsolete over time. This becomes more crucial when one realizes that agricultural commodity prices are the primary determinants of farm income. Price dispersion can have a serious impact on the distribution of incomes in the agricultural sector. Thus, continual search is necessary.

THE TECHNOLOGY

Direct broadcasting by satellite is rapidly becoming an important new application of communications satellites throughout the world. Direct satellite broadcasting was

successfully pioneered in Canada in 1976 on the experimental satellite Hermes. This eventually led to the use of the Anik C satellite for services on a commercial basis.

Communication by satellite has a unique place in Canada because of the country's vast territory and its widely dispersed population. It is an ideal technology for overcoming the tyranny of distance and population dispersion. The ultimate application of a satellite information system will occur when they are used for direct broadcasting to home receivers. This is now occuring but a large majority of rural homes do not have receivers as yet.

Despite the increased coverage made possible by this use of satellites to relay TV signals, more than 16 percent of the Canadian population still has relatively limited access to broadcast services. Between four and five million people in rural and remote areas of Canada are too dispersed to be adequately served by conventional broadcast and cable vision systems. They receive between two and three television channels on an average. They must therefore, be considered underserved by the standard of television service available to the majority of Canadians. Direct broadcasting by satellite is an effective way of providing them with the equality of service expected by today's society.

With the increasing sophistication of satellite technology, information systems are fast becoming viable and useful for specific purposes. They have long been recognized for providing entertainment, but are now becoming important for providing information and education.

THE STUDY

Each year Saskatchewan farmers are faced with the production decisions of which crops to plant and how much of each to plant. They need to know the price to expect for their crops and the quantity they will be able to market. In order for them to make these decision rationally it is imperative that they have access to reliable forecasts of market prices and conditions. This study was undertaken to determine the effectiveness of using a satellite delivery system to provide market information to farmers.

The farm manager in the 1980s is caught in the cost-price squeeze of market forces beyond his control. Price and market unstability dictate that the farmer keep abreast of the changing trends. Whale, Hass and Hobin identify several methods whereby farmers keep up with these trends including reading the newspaper, listening to the radio, watching television, and subscribing to specific marketing journals. This study examines the use of satellite delivery or more specifically the Crop Market Prospects program.

Crop Market Prospects is a one-day conference which has been held in mid-March of each year since 1984. It presents the market outlook for both crops and inputs,

investigates the world grain situation, and provides a long-term outlook. The conference, beamed live via the Anik C and Anik D satellites to fifteen centers, provides opportunity for feedback and questions through direct phone links.

The Crop Market Prospects program is jointly sponsored by the University of Saskatchewan and the Saskatchewan Department of Agriculture (SDA). In 1986, the seminar took the form of two broadcasts on March 19, 1986 from 10:00 a.m. to 12:00 noon and from 1:30 p.m. to 3:30 p.m. A registration fee was collected from each of the participants and a lunch was provided, giving an opportunity for people to get acquainted and discuss the morning session.

The telecast was beamed from the Division of Audio Visual Services' studio at the University of Saskatchewan. It was uplinked to the Telesat Canada communicatons satellites, and broadcast to twelve other designated centers in Saskatchewan and two in Alberta. The University studio contained five resource people and a moderator as well as a live studio audience. Question periods after each of the four main presentations allowed interaction from the centers via direct phone lines.

The Division of Extension, University of Saskatchewan, took responsibility for the overall coordination of the program. The Extension Service Branch of the Saskatchewan Department of Agriculture (SDA) was responsible for providing coordinators in each of the designated centers to look after promotion and other local needs. In most cases, this facilitator was the agricultural representative for the district. The Deparment of Agricultural Economics, University of Saskatchewan provided two resource people and prepared printed resource material. Three additional resource people were available from the Marketing and Economics Division, SDA. The staff and activities for production, direction and technical delivery of the program were provided by the Division of Audio Visual Services, University of Saskatchewan.

In looking at the impact of the Crop Market Prospects program, one must consider not only the immediate program, but also the long-range effect. This required an investigation of the applications being carried out as a result of the program. If an objective of agricultural extension is to improve the knowledge, understanding and attitudes of producers, there was a need to find out if this program was accomplishing this objective.

PURPOSE AND OBJECTIVES OF THE STUDY

The overall purpose of this study is to evaluate the usefulness of the Crop Market Prospects program in providing market information for farm production decisions. Specific objectives were 1) to determine changes in intended and actual acreage due to the market information presented, 2) to discover if expected income improved as a result of

changes made, and 3) to identify those producers receiving the greatest benefit from the program.

SCOPE OF THE STUDY

The study was based on surveys of participants of the 1986 Crop Market Prospects program, which was jointly held by the SDA and the University of Saskatchewan. The spring questionnaire is contained in Appendix A. A fall survey, presented in Appendix C, was sent to all full- and part-time farmers at the conclusion of harvest as a follow up to the program.

This study did not attempt to analyze the validity of the market forecasts themselves, but rather left this type of evaluation up to the economists directly involved. Instead, it focused on production decisions by the farmer and on what impact, if any, the availability of market information had on these decisions. That is, the analysis was based on farmers' interpretations and the data they provided.

Program evaluation can be either summative or formative. Summative evaluation seeks to summarize the effectiveness of a given program. The evaluator should provide conclusions about that program which can then be applied to subsequent programs. Similar studies should be used as a basis for comparison of these conclusions. A summative evaluation can then be employed as a basis for proposed changes.

Formative evaluation is mainly concerned with pre-program characteristics. Planning and development of programs requires testing for potential problems and identifying areas of weakness.

Based on these typologies, the study of Crop Market Prospects can be viewed as summative in nature. It sought to summarize the program as well as present areas which may require further development or change.

The mail survey method was selected for the primary data collection in this study. This method had several advantages as well as disadvantages which influenced its adoption. Mail questionnaires allowed wide distribution at relatively low costs. Respondents were able to answer the questions at their own leisure as opposed to the controlled responses of telephone or personal interviews. In addition, the provision of a stamped, return envelope encouraged respondents to complete and return the form.

On the other hand, certain difficulties may have been introduced through mail surveys. Responses may have been biased by non-responses and interpretation of omissions. Additionally, it can be a very slow method of data collection, due to loss of control over the questionnaires.

This study was based on the results of the two surveys. The first of these was distributed to all participants immediately following the final session on the day of the program, March 15, 1986. They were collected by the agricultural representatives in each area and compiled by the Division of Extension, University of Saskatchewan. This survey attempted to evaluate the usefulness of the material which was presented as well as the reaction of participants to the delivery system.

The second phase of evaluation was a mail-back questionnaire sent out in November, 1986 to participants who were either full- or part-time farmers. This time of year was chosen in order to gather producer opinions after the harvest was complete. The purpose of the fall survey was to determine the influence of the program on cropping decisions and expected income. Questionnaires were coded to correlate the responses with the previous survey completed in the spring.

The spring survey was divided into two parts. The first part was designed to obtain data on the profile of participants including age, involvement in agriculture, size of farm, and reasons for attending the program. The second part was designed to have the respondent evaluate the program format in terms of time for questions and the quality of information provided. In order to evaluate what impact the program might have on decision making, a number of questions dealt with planting decisions. Since the program provides information that could affect the farmers' planting decisions, a question was asked to determine if farmers had made their cropping decisions at the time of the program. It was then asked if they would change their decisions because of the information they were given. Since the program presents price forecasts, it was felt important to determine 1) if farmers make their own price forecasts, and 2) how their own forecasts compare to the program's forecasts. In addition, direct questions were asked to rate the overall program and its usefulness.

The fall survey was primarily intended as a follow-up to see how producers actually behaved compared to their original intentions. Farmers were asked to indicate how accurate they thought the program forecasts would be for each of eight crop groups. Since a goal of the program is to make farmers better off, producers making changes as a result of the program were asked for the effect of these changes on their expected income. A number of questions were asked to get farmers' perceptions of whether they made the right planting decisions. A question on the usefulness of the program was asked to determine if producers had a different idea of the program in retrospect. Farmers were also asked to indicate if it was likely that they would attend the program in 1987 and if they had any suggestions for the next program.

STATISTICAL ANALYSIS

This study employed several methodologies in order to test the analysis of the information obtained. The basic data generated from the two questionnaires can be summarized by use of frequency distributions. An analysis of proportions allowed differences between intended and actual acreages to be compared. Cross-tabulations combined with the chi-square test of independence enabled one to test for relationships between usefulness and participant characteristics such as age, occupation and size of farm.

The majority of the data collected from the two surveys can be summarized by the use of frequency tables. These tables are tabulations showing the number of observations occurring in each of a number of classes. Therefore the frequency distribution summarizes the data by grouping.

Differences in cropping intentions between the two surveys was tested by comparison of proportions. The comparison of two proportions was used to determine if there is a significant difference. The probabilities associated with the normal curve was used as an approximate test of the difference between two proportions. With large samples, this approximation is sufficiently accurate. The standard error of the difference between the two proportions can be calculated as:

$$s_{p_1-p_2} = \sqrt{\frac{p'q'}{n_1} + \frac{p'q'}{n_2}}$$

Where p' is the pooled proportion, and n is the sample sizes. The z statistic was computed from:

$$z = \frac{p_1 - p_2}{s_{p_1 - p_2}}$$

If the hypothesis that the two proportions are equal is tested at the 5 percent, a decision to accept or reject the statistical information would be based on the score of + or - 1.96.

Crosstabulations can permit one to determine whether a relationship exists between usefulness and various participant characteristics. In a contingency table, the number of cases for each combination of values of the two variables is displayed in a cell along with the various percentages. The cell entries provide information about relationships between the variables.

The number of cases in a cell is referred to as the frequency. It can be expressed as a percentage of a row or a column. If the column variable is selected as the independent variable, the column percentages should be used for comparison.

The Chi-Square test is used to evaluate the hypothesis that two variables are independent of each other. Two variables are considered to be independent if the probability that a case falls into a given cell is the product of the marginal probabilities of the two categories defining the cell. The expected number of cases for a given cell would be calculated by multiplying the product of the marginal probabilities by the number of cases in the sample.

The probability of an observation falling into cell (ij) is estimated by:

$$p(\text{row} = i \text{ and column} = j) = \frac{\text{count in row } i}{N} \quad X \quad \frac{\text{count in column } j}{N}$$

The expected number of observations in cell (ij) is obtained by multiplying the probability by the total sample size.

$$E_{ij} = \frac{(\text{count in row } i)\,(\text{count in column } j)}{N}$$

The residuals are then calculated by subtracting the expected frequencies from observed values. The chi-square statistic is found by summing over all cells the squared residuals divided by the expected frequencies.

$$X^2 = \Sigma_i \Sigma_j \frac{(0_{ij} - E_{ij})^2}{Eij}$$

The chi-square statistic can be compared to a theoretical distribution to estimate the likelihood of the calculated value if the two variables actually are indepedent. They would be (R-1) X (C-1) for a R X C table. If the observed significance level is less than 0.01, the hypothesis that the two variable are independent is rejected.

ANALYSIS AND RESULTS

Participants at Crop Market Prospects '86 were asked to complete a questionnaire as part of a program evaluation. (See Appendix A). These forms were collected by the agricultural representatives or area coordinators at each of the fifteen designated centers and sent to the Division of Extension, University of Saskatchewan for tabulation. The total attendance of designated centers was 791 farmers.

Four hundred and ninety-nine usable questionnaires were returned. These forms were compiled and coded to permit analysis on the campus mainframe computer. The

Statistics Package for the Social Sciences (SPSS-X) on the DEC VAX-8600 was used to sort and analyze the survey results.

Several questions were asked to determine the social characteristics of the respondents. Table 1 indicates that the age distribution follows a normal pattern with two thirds of the population between the ages of thirty and fifty.

Table 1 Age Distribution of Participants

age	number	percent
under 30	75	15.6
30-40	184	38.2
41-50	152	31.5
over 51	71	14.7
missing	17	--
total	499	100.0

Source: spring survey

Participants were also asked to indicate their occupation. According to table 2, full-time farmers comprised the majority of the audience. It should be noted also that some professional agrologists had indicated that they were full-time farmers.

Table 2 Occupations of Participants

occupation	number	percent
full-time farmer	437	88.3
part-time farmer	31	6.3
agrologist	17	3.4
other	10	2.0
missing	4	
total	499	100.0

Source: spring survey

The distribution of farm sizes in Table 3 gives a crude mean size of just over 1300 acres. The economics Branch of Saskatchewan Agriculture estimated the provincial average farm size to be about 1000 acres. According to search theory, the larger farms of participants indicate that these farmers would tend to be more demanding in terms of the market information they require.

Table 3 Size of Farms

area (acres)	number	percent
under 640	61	12.9
640-1280	198	41.9
1281-2000	131	27.7
over 2000	83	17.5
missing	26	---
total	499	100.0

Participants were asked to list their top three reasons for attending the conference. The most common reason given was to learn about the general cropping outlook for the next year. Gaining more understanding of market forces and agricultural policy was indicated as the second important consideration. Responses for the third reason were split between curiosity about the technology of the program delivery and enjoyment of previous Crop Market Prospects shows.

Only 126 of the 499 respondents had been to the program in the two years it had been held previously. Of these, 79 had only been to the program in 1985 and 13 had only been to the program in 1984. There were 34 respondents who had been to both of the previous conferences.

Approximately two thirds of the responses indicated that the amount of information and the time for questions was adequate. The remaining one third was evenly split between not enough and too much. The one exception to this was in regard to the time for questions in the afternoon, where thirty-six percent felt it was inadequate.

The rating of the overall program was overwhelmingly positive with ninety-four percent giving it a good to excellent rating. The program's usefulness was given a similar rating with ninety-five percent indicating it was useful to very useful.

Table 4 shows the current positions on cropping plans at the time of the Crop Market Prospects program. Almost seventy-two percent of respondents had either decided on most or all of their cropping plans at this time.

Table 4 Position of Cropping Plans

category	number	percent
decided on all	67	14.3
decided on most	270	57.4
decided on half	36	7.7
decided on a few	54	11.5
no decisions yet	29	6.2
do not farm	14	3.0
missing	29	--

Source: spring survey

The spring survey also attempted to discover if farmers made their own price forecasts before coming to the conference. They were asked to mark one of the categories for those crops they planned to grow. Table 5 summarizes the farmers' prices as being lower, close to, or higher than the forecasts presented in the program for each of eight crop categories. No specific bounds were given for these ranges.

Table 5 Crop Forecast Comparisons

	lower		close		higher		no forecast	
crop	#	%	#	%	#	%	#	%
spr. wheat	52	13	220	56	93	24	30	8
durum	34	12	107	38	79	28	60	21
barley	44	14	111	34	124	38	45	14
oats	15	9	22	13	56	34	74	44
rye	10	7	20	14	35	25	78	55
canola	35	13	126	48	50	19	50	19
flax	32	15	94	45	30	14	54	26
specialty	17	9	83	45	21	11	63	34

* Percentages in this and following tables may not add to 100 percent due to rounding.

Source: spring survey

Farmers had made significantly higher forecasts for barley and oats than what was presented in the program. The percentage of farmers not making a forecast was lowest for those crops having the greatest number of producers. The percentage of farmers not making a forecast on less popular crops may be biased by producers marking that category even though they did not grow those crops.

Farmers were to indicate in the survey any cropping changes they would likely make based on the information they had received. Any acreage change of fifty percent or more was considered to be a major change. These results are summarized in Table 6.

Table 6 Intended Acreage Change

crop	major decrease #	%	decrease #	%	no change #	%	increase #	%	major increase #	%
spr. wheat	6	2	82	21	277	71	24	6	4	1
durum	3	1	13	5	151	60	77	31	8	3
barley	15	5	59	19	196	64	34	11	0	0
oats	4	3	17	14	96	76	9	7	0	0
rye	5	5	15	15	81	79	1	1	0	0
canola	5	2	22	10	154	68	43	19	3	1
flax	4	2	11	6	101	56	58	32	5	3
specialty	4	2	3	2	107	58	57	31	15	8

Source: spring survey

These results indicate a trend of moving from spring wheat and barley crops to others such as flax and specialty crops. This may be due to the pessimistic forecasts given for board grains.

The fall survey was mailed out in November, 1986 to all full-time and part-time farmers who had completed the spring questionnaire (see Appendix C). A cover letter (Appendix B) was attached explaining the purpose of the questionnaire. Return rates are shown in Table 7

Table 7 Responses by Location

name of center	spring surveys returned	fall surveys mailed	fall surveys returned	percent surveys return
Peace River	17	12	6	50
Vermilion	27	19	4	21
Regina	55	52	35	67
Weyburn	34	34	19	56
North Battleford	24	24	8	33
Tisdale	16	14	10	71
Swift Current	26	25	13	52
Kindersley	35	34	22	65
Moose Jaw	41	39	23	59
Rosetown	38	36	20	56
Prince Albert	38	35	14	40
Nipawin	37	35	16	46
Yorkton	35	35	16	46
Wynyard	10	10	3	30
Saskatoon	66	64	29	45
total	499	458	236	50

Source: adapted from surveys

A total of 241 fall surveys were returned. Two were returned as undeliverable and three were returned too late to be coded, leaving 236 eligible responses. This response rate of 50 percent is excellent in comparison with the rates of similar studies.

Respondents were asked to evaluate the accuracy of the forecasts given at Crop Market Prospects '86. Results given in Table 8 show that farmers think the forecasts were quite accurate for most crops. However, many farmers felt the canola and flax forecasts were too high.

Table 8 Forecast Accuracy.

crop	too low #	too low %	fairly close #	fairly close %	too high #	too high %
spr. wheat	14	6.6	164	77.0	35	16.4
durum	18	13.1	105	76.6	14	10.2
barley	8	5.4	111	75.0	29	19.6
oats	8	20.0	29	72.5	3	7.5
rye	2	5.7	27	77.1	6	17.1
canola	11	10.8	43	42.2	48	47.1
flax	12	14.1	35	41.2	38	44.7
specialty	19	24.4	53	67.9	6	7.7

Source: fall survey

A question similar to that on the spring questionnaire was asked to determine the actual changes in acreage planted as a result of the information presented at the Crop Market Prospects program. These results are summarized in Table 9

Table 9 Actual Acreage Changes

crop	major decrease #	major decrease %	decrease #	decrease %	no change #	no change %	increase #	increase %	major increase #	major increase %
spr. wheat	9	5	57	32	96	54	11	6	4	2
durum	0	0	7	7	57	54	35	33	7	7
barley	14	11	13	10	74	58	23	18	3	2
oats	3	8	1	3	30	79	4	10	0	0
rye	2	7	1	4	21	78	1	4	2	7
canola	1	1	4	5	50	65	17	22	5	6
flax	5	8	2	3	34	54	10	16	12	19
specialty	2	2	4	5	36	46	19	24	18	23

Source: fall survey

As was found in the spring survey, acreage for spring wheat and barley fell, while specialty crops and flax acreages were increased. The fall survey also shows that durum had a major increase in acreage seeded.

For farmers making changes in planting decisions due to the information presented in the program, over 50 percent stated that they felt their expected income would increase as a result of these changes. Thirteen percent felt there would be no effect, ten percent felt expected income would decrease and twenty-six percent were unsure of the income effects.

For farmers not making changes in their planting decisions, 74 percent felt they made the right decision, while 26 percent thought they should have made changes.

Some farmers indicated that they had not made any cropping plans prior to the Crop Markets Prospects program. Seventy percent of these claimed that they used the information in making their decisions. The other 30 percent did not use the information provided. Of those using the information, 86 percent felt they had made the correct planting decisions. For those who did not use the information from the program, 38 percent felt, in retrospect, that they should have used it.

When asked to comment on the usefulness of the program, 89 percent gave a rating from useful to very useful. This was very similar to the rating given in the spring. Ninety-three percent of respondents indicated that they were planning to attend the next Crop Market Prospects program on March 18, 1987. This high figure may be biased due to the nature of the farmers who returned the questionnaire.

Intended and actual changes in cropping plans were compared by standardizing the proportions with a normal distribution. A level of 95% is used to determine the significance of the results presented in Table 10.

Table 10 Z Statistics for Cropping Changes

crop	major decrease	decrease	no change	increase	major increase
spr. wheat	-2.46	-2.92*	3.77*	-0.05	-1.17
durum	1.13	-0.54	1.08	-0.46	-1.48
barley	-2.30*	2.33*	1.21	-1.94	-2.69*
oats	-1.26	1.88	-0.35	0.68	0.0
rye	0.51	1.54	0.19	-1.02	-2.77*
canola	0.49	1.22	0.47	-0.60	-2.45*
flax	-2.06	0.90	0.34	2.51*	-4.34*
specialty	-0.19	-1.60	1.79	1.09	-3.32*

Source: fall survey

The z statistics, marked with an asterisk, indicate that the proportions between intended and actual acreage changes are significantly different at the 95% confidence level. These results show that farmers who intended to make no changes in spring wheat seeded actually decreased spring wheat acreages. Barley changes were shown to be significant for both decreases and increases. This would mean that some producers planted less barley acreage than originally intended and others planted more.

Rye, canola, flax and specialty crops showed a significant increase of actual acreage over intended. As mentioned earlier, this may be attributed to low prices for board grains. At the same time, there were a significant number of farmers who decreased their flax acreages more than originally intended.

Contingency tests were used to determine whether usefulness of the Crop Market Prospects program is related to age, occupation, or size of farm. The chi-square distribution was used as the test statistic in each case. Analysis was carried out at the 5 percent level.

It was found that there was insufficient evidence at the 5 percent level to conclude that the program usefulness was related to age of the participants, the size of farm or whether the farmer was involved in full time or part time farming.

CONCLUSIONS FROM THE STUDY

Crop Market Prospects serves farmers, since over 94 percent of participants are either full-time of part-time farmers. This means that the program should be geared

towards the farmer clientele. In addition, the farm respondents operate considerably larger farms than the average Saskatchewan farmer as estimated by Saskatchewan Agriculture, indicating a higher level of information needs.

Participants are generally satisfied with the format of the program. The information is useful in helping producers make decisions regarding the types of crops to plant.

The findings of this study indicate that expected income increased as a result of changes made due to the information presented at the program.

Producers tended to move away from traditional crops such as spring wheat and barley to others such as flax, durum, and specialty crops. This was due primarily to the low prices forecast for certain cereal crops.

There were no relationships identified between the level of usefulness of this program with the participant characteristics of age, size of farm, or time spent farming.

CONSIDERATION OF ADULT EDUCATION PRINCIPLES

Satellite delivery facilitates the delivery of technology to a large, widely dispersed audience both effectively and efficiently. Because the resource people can be seen by the participants, there is a feeling of "relating to" which is nearly as effective as the traditional "warm body" approach. To facilitate this there are a few basic considerations which must be addressed during the delivery. Probably the most important thing to consider is eye contact. The resource person must look directly at the camera to give the audience participant a feeling that he is talking directly to him. This is important as it creates a feeling of caring and sharing. A second consideration is the use of visual aids. When these are displayed on the screen, the audience looses contact with the presentor. In a live audience situation the participant can always glance back to the presentor to determine the meaning of the message. Not so with television. The converse is also true with the resource person. He cannot check with his audience to get the non verbal feedback which is very important in gauging the impact of the material being delivered. Related are considerations such as voice, clarity of speech, speed of delivery and so on. We who spend a great deal of time lecturing both in the classroom and at extension events contunually use the instant feedback from the audience to gauge our delivery techniques. Using satellite delivery systems, these are not available thus special care must be taken to ensure that all of these are at optimal effectiveness.

Because satellite delivery allows for the disemination of information to a large number of centers widely dispersed, it can be very efficient. However this can also create some problems which must be considered. When deciding what date or indeed time to deliver a program becomes very difficult. What might be suitable in one community may

not be in another. While there is no absolute solution for this problem, it does point out the advantage of establishing a specific date and time for programs that are delivered annually. This allows local planners to establish local awareness and thus plan other events around that date and thus avoid local conflicts.

Finally the resource people themselves must be considered. While this is an important consideration for any extension event, it becomes more critical in distance education using satellite delivery. Care must be taken to select resource people who have some charisma, who are prepared, who exhibit enthusiasm and who appear interested in the subject matter. These characteristics are important in all adult education activities but become even more so if the adult learner only has to push a button or turn a dial to stop a poor presentation!

SUMMARY

Satellite technology allows for the delivery of information to a widely dispersed population over a large area in an efficient and effective way. By adding visual to audio contact the adult participant is able to more easily relate to the resource person.

Satellite technology also allows the program planner to utilize resource people who have a great deal of expertise in a subject matter area but who would be too busy to travel to a large number of local meetings. Related to this is the fact that there is an economic saving as resource people who are very busy are likely to agree to a one day committment but would not be able to provide enough time for more.

The technology also makes it easier for the participant to attend the activity. They will not have to travel as far or be away from home for as long thus they are more willing to attend events which are beneficial to them. Again this is an important economic consideration for the adult particpant.

Finally, although the technology has a great many advantages, we as adult educators must not loose sight of the importance of using sound adult education principles. They are even more important when using satellite technology as feedback becomes very difficult.

We are entering an exciting time. New technologies are allowing adult educators to provide much better service to the adult learner. The challenge I believe is not in getting the adult learner to accept the new technologies but rather to convince the adult educator to use them.

APPENDIX A Spring Questionnaire Form

CROP PROSPECTS '86

This questionnaire will help us know who comes to these events and how helpful they are to you. Your assistance in filling this out is greatly appreciated!

I. Participants

1. Please indicate your age group. (check one)

   ( ) under 3 ( ) 30-40 ( ) 41-50 ( ) over 60

2. What is your primary involvement in agriculture? (check one)

   ( ) full time farmer ( ) part time farmer ( ) agrologist ( ) other

3. How many cultivated acres are in your operation? (check if applicable)

   ( ) under 640 ( ) 640-1280 ( ) 1281-2000 ( ) over 2000

4. What are your reasons for attending? (rank top three with 1 as highest)

   ( ) a. to learn about general cropping outlook
   ( ) b. to gain more understanding of market forces and agricultural policy
   ( ) c. enjoyed previous Crop Market Prospects program
   ( ) d. curiosity about the technology of the program delivery
   ( ) e. Other (specify) _____

5. Did you attend the program in '85? '84? (please circle the year(s)

II. Crop Market Prospects '86

The morning session dealt with factors affecting markets such as the US farm program.

6. How much information was provided? (circle appropriate number)

   1----------2----------3----------4----------5
   not enough just right too much

7. Was there enough time for questions? (circle number)

   1----------2----------3----------4----------5
   not enough just right too much

The afternoon session dealt with the crop market outlook for 1986.

8. How much information was provided? (circle number)

   1----------2----------3----------4----------5
   not enough just right too much

Please turn page . . .

9. Was there enough time for questions? (circle number)

1----------2----------3----------4----------5
not enough just right too much

10. What is your current position for this year's cropping plans? (check one)

( ) decided on all ( ) decided on most ( ) decided on half
( ) decided on a few ( ) no decision yet ( ) do not farm

IF YOU DO NOT FARM PLEASE GO DIRECTLY TO QUESTION #13

---

11. We would like to learn if farmers make their own price forecasts before planting. Please indicate your thoughts using the following chart. (Just check those crops that you plan to grow).

A My price forecast was lower than what I heard today
B My price forecast was fairly close to what I heard today
C My price forecast was higher than I heard today
D I did not make a forecast for this crop

CROP	A	B	C	D
spring wheat				
durum				
barley				
oats				
rye				
canola				
flax				
specialty				

12. We consider any acreage change of 50% or more in any crop to be a major change. We would like to find out if farmers make changes as a result of the information presented today. (Please check the applicable crops).

Crop	Major decrease	decrease	No change	increase	Major increase
spring wheat					
durum					
barley					
oats					
rye					
canola					
flax					
specialty					

13. How would you rate the overall program? (circle number)

1----------2----------3----------4----------5
poor good excellent

Please comment _____

_____

_____

14. How useful was this program? (circle number)

1----------2----------3----------4----------5
not useful useful very useful

Please comment _____

_____

_____

Additional comments _____

_____

_____

_____

This type of delivery method is still quite new. In order to help us provide better information to farmers please print your name and address so that we may contact you again. We want to keep in touch.

Name _____

Address _____ Postal Code _____

Thank you for helping us design better programs for the future!

APPENDIX B Cover Letter

UNIVERSITY
SASKATCHEWAN
SASKATOON
CANADA
DIVISION OF
EXTENSION
& COMMUNITY
RELATIONS
S7N 0W0

October 31, 1986

Dear Participant of Crop Market Prospects '86:

March 18, 1987 may seem a long way off to you. However, we are busily preparing for the next Crop Market Pospects program. In an effort to improve the program and focus it on the areas you as a producer would like to see, we are enclosing a short survey questionnaire.

Now that we have held this program for three consecutive years, we are attempting to do an extensive evaluation on it. We would appreciate it if you would take a few minutes to complete the enclosed survey and return it in the prepaid envelope provided. Please try to return your form by December 1, 1986 to:

Glen Hass, P.Ag.
Room 110, Kirk Hall
University of Saskatchewan
Saskatoon, Sask.
S7N 0W0

We would like to take this opportunity to thank you for your participation in this program and for completing our initial questionnaire last spring.

Sincerely yours,

Glen Hass, P.Ag.
Division of Extension
and Community Relations

GH/mbg

Enclosure

3a. What changes did you make in your planting decisions based on information obtained at Crop Market Prospects? We considered any acreage change of 50% or more in any crop to be a major change. (Please check for the crops you grew)

	major decrease	decrease	no change	increase	major increase
spring wheat					
durum					
barley					
oats					
rye					
canola					
flax					
specialty					

3b. For those crops where you made changes as a result of the information presented, what effects do you feel these changes will have on your expected income?

( ) change will have no effect
( ) expected income will increase
( ) expected income will decrease
( ) unsure of effect

Please comment._____

_____

_____

_____

3c. For crops where no changes were made, how do you feel about your decisions now?

( ) I made the right decison.
( ) I should have made seeding changes.
Please comment_____

_____

**Disregard question 4 if you answered the questions in #3.

4a. Did you use the information from Crop Market Prospects '86 in your 1986 planting decisions?

( ) yes
( ) no

4b. If YES, do you feel that you made the correct planting decisions in terms of expected returns?

( ) yes
( ) no

4c. If NO, do you feel now that you should have utilized the information?

( ) yes
( ) no

5. How useful is the Crop Market Prospects Program to you? (circle number)

not useful useful very useful

1----------2----------3----------4----------5

Please comment_____

_____

_____

_____

6. This program will be held again on March 18, 1987. Is it likely that you will attend?

( ) yes ( ) no

7. What suggestions would you make for Crop Market Prospects next year?

Please return this questionnaire by December 1, 1986. A return envelope with prepaid postage has been provided for your convenience. Thankyou for helping us improve agricultural programs for farmers.

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